Workshop 452

Fundamentals of Assessment Ratio Studies

Student Reference Manual

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INTERNATIONAL ASSOCIATION OF ASSESSING OFFICERS (IAAO)

WORKSHOP 452-FUNDAMENTALS OF ASSESSMENT RATIO STUDIES
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4.4.3 Market Adjustment Factors

Assessment ratio studies can be used to help develop market-adjustment factors to trend appraised values toward the statutory level. These factors can be developed by type of property, geographic area, legal classification, and other relevant criteria.

Mathematically, market adjustment factors can be derived by dividing the target level of appraisal by the observed level. Assume, for example, that the target level is 95 percent and that measures of central tendency indicate that the overall assessment ratio for a given stratum is 70 percent. The indicated market adjustment factor would then be 1.36 (0.95 divided by 0.70).

Market-adjustment factors can also be developed separately for land and building values if the assessment level for one of the two components is known. As an example, assume that the indicated overall assessment ratio for commercial property is 0.82, that the overall ratio for vacant commercial land is 0.74, that the land-to-building ratio is 1 to 4, and that it is reasonable to assume that vacant and improved commercial land are similarly appraised. Then, if the target level of appraisal is 0.95, the indicated market-adjustment factor for commercial land is 1.28 (0.95 divided by 0.74), which implies that the overall assessment ratio for commercial improvements (abbreviated X below) is:

$$\begin{aligned} 0.82 &= (0.20 \times 0.74) + 0.80X \\ 0.82 &= 0.148 + 0.80X \\ 0.80X &= 0.82 - 0.148 \\ 0.80X &= .672 \\ X &= 0.84 \end{aligned}$$

Hence, the required market-adjustment factor for commercial improvements is 1.13 (0.95 divided by 0.84). Together, land and building market adjustment factors developed in this manner will yield the target assessment ratio of 0.95:

	Land		Bldg.		
% of Total Value	0.20		0.80		
Assessment Level	x 0.74		x 0.84		
Adjustment Factor	x 1.28		x 1.13		
	0.19	+	0.76	=	0.95

Of the three measures of central tendency, the median is generally preferred for the development of market adjustment factors, since it is less influenced by extreme ratios.

This feature is particularly important when the data have not been carefully edited or when samples are small. When samples are large and the data have been adequately screened, the mean and weighted mean can also be used. In such cases the mean has slight statistical advantages over the median. The weighted mean has the unique feature that it weights the ratios on the basis of their sales prices (2.3.3). This feature is advantageous when attempting to equalize the assessed value of each stratum in proportion to its total market value, particularly when the individual strata are heterogeneous and display large dispersion in sales prices.

By equalizing assessment levels between strata, market adjustment factors will improve the overall uniformity of assessments as measured, for example, by the overall coefficient of dispersion. Factoring, however, will not affect coefficients of dispersion within strata. This is because all the assessed values within a given strata will have changed by the same percentages. This is illustrated in Exhibit 4.1, in which the target level of assessment is assumed to be 0.95. The median ratio is 0.76, which yields a market adjustment factor of 1.25. Notice that, after factoring, the median ratio is 0.95, but the coefficient of dispersion is unchanged. (The slight calculated difference of 9.21 versus 9.20 is due to rounding).

$$\frac{\text{Target Level of Assessmet}}{\text{Current Level}} = \frac{95\%}{70\%}$$

$\frac{.95}{.70} = 1.36 =$ Adjustmet Factor to get

Target ÷ Current = Trend

EXHIBIT 4-1
Market Adjustment Factors

Before Factoring

A	S	A/S	|A/S-$\overline{A/S}$|
74,100	95,000	.780	.020
80,400	120,000	.670	.090
50,560	79,000	.640	.120
120,560	137,000	.880	.120
79,800	105,000	.760	----
			.350

Median = 0.760
Avg. Abs. Dev. = .350/5 = 0.070
COD = (0.070/0.760) x 100 = 9.21
Mkt. Adj. Factor = 0.95/0.76 = 1.25

After Factoring

A	S	A/S	A/S-$\overline{A/S}$|
92,625	95,000	.975	.025
100,500	120,000	.838	.112
63,200	79,000	.800	.150
150,700	137,000	1.100	.150
99,750	105,000	.950	----
			.437

Median = 0.950
Avg. Abs. Dev. = .437/5 = 0.0874
COD = (0.0874/0.950) x 100 = 9.20

Thus, the application of market adjustment factors is most effective when there is good assessment uniformity within strata. In such cases, the overall assessment level and uniformity of assessments will be increased without "forcing" many assessed (or appraised) values significantly above market value.

When the dispersion in assessment ratios within strata is large, the strata should ideally be reappraised on a parcel-by-parcel basis. If time and resources do not permit this, the application of "conservative" market adjustment factors may be the best interim solution. The reasonable use of market-adjustment factors provides a good means of achieving considerable improvements in assessment accuracy at low cost.

4.5 Strategies for Improvement

The first steps in the improvement of appraisal performance are to evaluate current performance and practice and to establish goals for improvement. Assessment ratio studies are a key element. They provide the tool for both evaluating current performance and establishing goals.

Accordingly, it is imperative that assessment agencies strive to establish an assessment ratio system that is flexible, accurate, and credible. The most important element in this regard is the regular receipt of reliable sales data. As mentioned (3.2), the preferred source of sales data is real estate transfer documents that show the full consideration involved and various other items regarding the transfer. Assessing officers that do not have access to such documents should promote legislation to obtain them. Meanwhile, they should establish alternative sources of sales data, such as questionnaires administered to parties to the sale, multiple listing services, private appraisers and real estate agencies, financial institutions, and other third party sources.

Assessing officers from areas with real estate transfer documents that do disclose sales prices should nevertheless strive to improve the relevant statutes and quality of the data. Most documents provide something well short of the items required for proper sales analysis and most laws do little to promote complete and accurate completion of transfer documents. In addition, assessing officers should work closely with the recorder's office and other public agencies to promote understanding of the importance of sales data and the proper completion of sales documents. Assessors can also promote cooperation by preparing brief statements on the need for and use of sales data, which could be provided to persons completing transfer documents.

Once obtained, data should be screened and edited using, for example, field inspections, questionnaires, and phone interviews. It is imperative to determine whether the transaction was an arm's-length sale and whether there was any significant change to the property (e.g., flooding or renovation) between the date of assessment and the date of sale. It is also important to determine whether the sale involves substantial items of personal property, below market financing, or other non-real estate considerations. Such transactions should either be excluded or the sales prices should be adjusted to reflect the cash value of the real estate.

When sales data have been carefully reviewed in this manner, the sales ratio study will tend to command credibility and confidence on the part of users. Of course, the analytical and statistical procedures must also be sound (Section 2). Once in place, a well-designed system based on sound data can, as previously discussed, be used with reliability to evaluate current performance, identify problem areas, formulate appraisal performance goals, and suggest corrective actions.